

May 20, 1965

Gentlemen:

STATINTL

We are pleased to submit our Proposal [ ] for the addition of a Two Direction Film Transport Reversing Unit to replace the Signal Direction Reversing Unit proposed [ ] for the three (3) Advanced Light Tables. This unit will be used to replace the present Single Direction Reversing Unit, allowing an operator to change film direction on either set of film spools by simply actuating one of two magnetic clutches.

STATINTL

The Single Direction Reversing Unit allows an operator to:

- (1) Transport two films in opposite directions simultaneously.
- (2) Transport a single film in either direction with the alternate film stopped.

The Two Direction Film Transport Reversing Unit will allow an operator to:

- (1) Transport two films in opposite directions simultaneously.
- (2) Transport two films in the same direction simultaneously.
- (3) Stop any one set of film spools and transport the alternate set in any direction.

The adoption of this unit into the film transport mechanism will provide a third feature to the system. The operator will have ultimate control over the transport of film regardless of the method of loading the film, emulsion up or emulsion down. Proper handwheel "sense" will be obtained in all modes of translation with the exception of two films reversing in opposite direction.

STATINTL

Adoption of the unit will require engineering and drawing changes to the present design amounting [ ]. These changes will entail casting design changes and relocation of shafts and other components in the three (3) units. The unit will not require any change in table dimensions. Weight of each table will be increased by approximately two (2) pounds. System friction load will be increased by approximately two (2) ounces - inch.

STATINTL

A detailed description of unit operation accompanied by a sketch is included with this proposal. Should additional information be required on the unit operation or its function in the system, please contact [ ]

We feel that this change is extremely worthwhile in enhancing the operation of the Advanced Light Table film transport mechanisms.

We thank you again for considering us as customers in the past and hope that we can be of service to you with your future requirements.

STATINTL

Declass Review by NIMA /  
DoD

JEH/sc

Approved For Release 2002/06/17 : CIA-RDP78B04747A001400040004-9

Enclosures: Price Breakdowns, Description Unit Operation

Method of Operation: Unit Specifications

Film transport is presently accomplished by turning one of three hand cranks attached to the input shaft of the two speed transmission. Power is then transmitted to the clutch-brake units through a common drive at a splined shaft, to drive film on each film transport system. "Sense" is such that when the hand crank is turned to the right, film is transported to the right. Turning the hand crank to the left will transport film to the left on the forward film transport only (handwheel sense is reversed on the aft transport). Specifications state that dual films must be transported simultaneously in opposite directions or one set of spools stopped while the other set is translated, therefore, "sense" of translation on the after film transport mechanism is opposite to the hand wheel when dual rolls of film or a single roll of film on the after transport is being translated. With the Two Direction Reversing Unit, the operator can select proper film transport direction as dictated by hand wheel "sense" when transporting single rolls of film in either direction (winding or unwinding), transporting one of two dual spools on either transport in either direction (winding or unwinding) or transporting dual rolls in the same direction (winding or unwinding).

The cardinal purpose of the Two Direction Reversing Unit is to provide the operator rotation direction control of the aft film transport system. The unit simply provides opposite or same rotation of its output shaft relating to its input shaft depending upon film translation requirements established by the operator. This is accomplished as follows:

Condition I - ("Same" Rotation)

Rotating the input shaft in the CW direction or CCW direction will allow the output shaft to rotate in the same direction. This mode is accomplished with clutch (A) disengaged and clutch (B) engaged. Power is transmitted from the input shaft and gear (a) to reverse idling gear (b), from reverse idling gear (b) to the driven gear (c). Driven gear (c) drives the input shaft of clutch (B) which is solidly coupled to the output shaft of the unit. This mode will allow dual rolls of film to be translated in the same direction when being wound or unwound.

Condition II - ("Opposite" Rotation)

Rotating the input shaft in the CW or CCW direction will permit the output shaft to rotate in the opposite direction. With clutch (B) de-energized to clutch (A) energized, motion will be transmitted from the input shaft through clutch (A) which is solidly coupled to gear (d) which is mated with gear (e) and connected to the output shaft. When operated in this mode, the output shaft will turn in an opposite direction to the input shaft, allowing film to be

-2-

simultaneously translated in opposite directions when being wound or unwound.

Unit Construction

Each unit, consisting of an aluminum housing, one output shaft, one input shaft, four drive gears, one reverse idling gear and two magnetic clutches, will be housed in a unit measuring 4" wide x 2-1/8" high x 2-1/2" deep. Ball bearings (ABEC -3) or better will be used through the unit to keep friction losses to a minimum. The gears will be 64 pitch to keep backlash to a minimum. All shafts will be stainless steel. The housing will be of aluminum and black anodized. The clutches will be magnetic units operating from 110 V-60 V. Clutches will be [REDACTED] with a torque of 100 ounce inches. Component selection will be based on a life of 250 x 10<sup>6</sup> cycles.

STATINTL

Next 1 Page(s) In Document Exempt